
Four-Point Control Arm

Patent Claims

1. A four-point control arm (1) for the axle suspension of a rigid axle, especially of a utility vehicle, the four-point control arm (1) having four bearing eyes (7, 8, 9, 10), of which two said bearing eyes (9, 10) can be connected to the axle and two said bearing eyes (7, 8) to the vehicle chassis, each in an articulated manner, wherein the four-point control arm (1) is designed as a one-piece, rectangular or trapezoidal hollow housing (2, 3, 4, 5, 6), which can be twisted and is defined by said bearing eyes (7, 8, 9, 10),
characterized in that said hollow housing (2, 3, 4, 5, 6) is formed essentially by a tube, which is arranged horizontally with respect to the vehicle and is open on a plurality of sides, with an essentially rounded cross section ranging from rounded rectangular to O-shaped shape.

2. A four-point control arm in accordance with claim 1,
characterized in that said hollow housing (2, 3, 4, 5, 6) is designed as a tube open on two sides.

3. A four-point control arm in accordance with claim 1 or 2,
characterized in that the longitudinal axis of the tube forming said hollow housing (2, 3, 4, 5, 6) extends at right angles to the longitudinal axis of the vehicle.

4. A four-point control arm in accordance with one of the above claims,
characterized in that said hollow housing (2, 3, 4, 5, 6) is reduced relative to the longitudinal axis of the vehicle in the vehicle-related top view.

5. A four-point control arm in accordance with one of the above claims,
characterized in that said hollow housing (2, 3, 4, 5, 6) is reduced relative to the transverse axis of the vehicle in the vehicle-related top view.

6. A four-point control arm in accordance with one of the above claims,
characterized in that said hollow housing (2, 3, 4, 5, 6) has an essentially one-piece cross-shaped or X-shaped shape in the vehicle-related top view with a central housing area (2) and four said peripheral control arms (3, 4, 5, 6) carrying said bearing eyes (7, 8, 9, 10).

7. A four-point control arm in accordance with claim 6,
characterized in that said control arms (3, 4, 5, 6) are designed as carriers subject to bending, which are profiled in said cross section (c).

8. A four-point control arm in accordance with claim 6 or 7,
characterized in that said cross-sectional shape (c) of said control arms (3, 4, 5, 6) has essentially the shape of a C or of a horizontal U.

9. A four-point control arm in accordance with one of the above claims,
characterized in that said hollow housing (2, 3, 4, 5, 6) is a casting or a shaped sheet metal part.

10. A four-point control arm in accordance with claim 9,
characterized in that said hollow housing (2, 3, 4, 5, 6) consists of bainitic cast iron.

11. A four-point control arm in accordance with one of the above claims,
characterized in that said bearing eyes (7, 8, 9, 10) are made integrally in one piece with said hollow housing (2, 3, 4, 5, 6).

12. A four-point control arm in accordance with one of the above claims,
characterized in that said bearing eyes (7, 8, 9, 10) of the four-point control arm (1) have elastomer joints or molecular joints (11, 12, 13, 14).

13. A four-point control arm in accordance with one of the above claims,
characterized in that the radial stiffness of two or four of said elastomer joints (11, 12, 13, 14) is lower in the direction of roll of the vehicle than in the direction extending at right angles to the direction of roll.